States have brought us to the limit of our available capital; and foreign capital, through such devices as finance bills on Europe, could at present no longer be drawn upon. Clearly, then, the banks could not expect to obtain more capital at once, even if all the demands upon them had been legitimate.

As the fall in the stock market has shown us, however, some of the collateral was undoubtedly not worth the high prices established; and, when the banks as the only wise alternative, were obliged to call their loans based upon this questionable collateral, the lending institutions returned to a sounder basis of credit and placed themselves in a position where the general business public could receive better accommodation. The result is one which, while reached only by drastic treatment, is unmistakably healthier and safer than the condition before the disturbance. The emetic has been given; and the patient has been purged, much to his advantage.

It is needless to say, therefore, that the late débacle could not have been prevented by the existence of an elastic asset currency. The essential evil was in the kind of loans made—i. e., the kind and prices of collateral used—and the evil could have been accomplished through the means of granting to the borrower either a deposit account, or the banks own issues (had the latter been possible). It is not the special weapon used to kill, which is to be held responsible, but the assassin who wielded the weapon. It is not the special liability in the form of a deposit, or of a note, which is dangerous, but the character of the loan which gives rise to the consequent liability.

J. Laurence Laughlin

THE MARGINAL PRODUCTIVITY THEORY OF DISTRIBUTION

The two main propositions of this theory are, that each agent of production creates a distinguishable share, and that each gets what it creates.[1] The first question we have to answer, therefore, is, whether or not there are distinguishable shares in production. In order to simplify the problem, we will confine our attention chiefly to labor and wages.

According to the theory under consideration, there are two marginal zones of production, the extensive and the intensive, where labor creates the whole product, all of which goes to labor. The

[1] J. B. Clark, *Distribution of Wealth,* p. 3.

extensive margin consists of worthless land and worthless tools with which labor works.

There are machines that have outlived their usefulness to their owners, but still do their work and give the entire product they help to create to the men who operate them.[2]

It may be true that under the circumstances indicated labor gets the whole product, but it does not follow from that fact that labor creates all of it. If these "worthless" machines "do their work" and "help to create" the product, it is a contradiction in terms to say that labor creates it all. Moreover, it is begging the question to call machines "worthless," for they become such, not because they chose to be agents of production, but because, it would seem, wages are so high that labor gets all of the joint product of labor and capital.

Let the general rate of wages rise, and many of these instruments will be thrown out of use. Let the rate then fall, and the utilization of them will be resumed.[3]

We cannot accept this part of the argument because it contradicts itself and assumes the point that should be proved, that labor creates the whole product in the extensive margin.

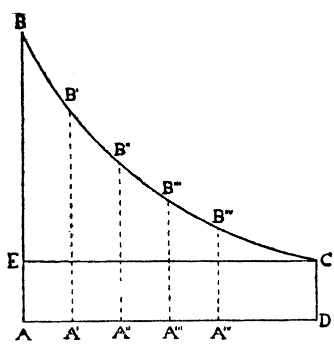
The intensive marginal field in which labor is supposed to create the whole product is of two kinds, one in which the same tools are used more intensively and one in which the forms of capital are changed to suit the number of laborers. But since the method of detecting the share produced by labor is the same on both margins, we may for the present neglect the difference between the two. This method has been aptly called the "method of difference." Add or subtract a unit of labor, and the increase or loss in product measures the amount created by the marginal man added or taken away; and since all units of labor are assumed to be alike, mutiplying the marginal product by the number of men gives the total product of labor.

Now the question arises: Is the marginal product really created by labor alone, or is it a joint product? If the marginal man works with capital, the marginal product, is a joint product. In order that the marginal product be really due to labor alone, the marginal man must work unaided by any other agent. And this seems to be the premise upon which the argument at this point is based. We are told that "land makes its own contribution to the product of each

[2] Cark, *op. cit.*, p. 96. [3] *Ibid.*, p. 96.

unit of labor except the last one," and that the surplus that each earlier unit of labor creates above the amount created by the marginal unit is "the difference between the product of aided labor and that of the labor that is virtually unaided." [4] But why does not land aid the last laborer, and why does not capital aid the last comer? Are we not again assuming what should be proved? Moreover, we are distinctly told in another connection that "the new working force and the old one share alike in the use of the whole capital." [5] If all the units of labor share alike in the use of capital, it cannot be admitted that the marginal unit works unaided, and it cannot be admitted, therefore, that the marginal product is created by labor alone.

It would appear that where two agents are working together, neither of which could create anything alone, it is impossible to determine the share of each, since we have nothing to reckon from. But the apparently impossible is seemingly accomplished by assuming that one of the agents is passive while the other is expanding. the expanding agent creating the whole product while the dynamic process is going on; then when the static state is reached the last unit of labor is assumed to be working unaided, its specific product is taken as the standard of all units of labor and all the surplus products of labor above the marginal product are *imputed* to capital, which for some unaccountable reason now becomes active. This curious process of reasoning is illustrated by the following passage, which is typical of many others:



Labor, applied to the whole fund of capital in land and all other instruments, is now subject to the law of diminishing returns. The first unit

[4] *Ibid.*, pp. 195, 199.

[5] *Ibid.*, p. 323.

produces the amount AB, the second produces the amount $A'B'$, the third creates the quantity $A''B''$, and the last the quantity DC. This last amount sets the rate of wages, and the area $AECD$ measures the amount of wages. It leaves the amount expressed by the area EBC as the rent of the fund of social capital. All interest is thus a surplus, entirely akin to the rent of land, as that is expressed by the Ricardian formula: it is a concrete product, attributable to the agent that claims it as an income.[6]

Now, if labor creates all of AB, none of it is created by capital, since two agents cannot exclusively produce the same thing. On the other hand, if all the increments, except the last are joint products, CD is also a joint product, since the new working force and the old one share alike in the use of the whole capital. We have in this chain of reasoning two contradictory statements, and one unwarranted assumption which conflicts with express statements in other parts of the theory. We have found, therefore, no way of distinguishing the products of the different agents.

Our general conclusion is that the first proposition, that there is a distinguishable share in production, has not been proved. We might, therefore, properly end our discussion at this point, since the whole theory hangs upon this proposition; but in order to test the theory more thoroughly, it may be well to examine all its parts.

We will, therefore, proceed to inquire how and why the marginal product, whether we call it a joint or a specific product, sets the standard of wages. According to one view, employers are compelled to give the marginal product all to labor by the force of competition among them for laborers.

> Theoretically, there is competition between employers for every workman whose presence in an establishment affords the owner any profit over what he pays to him; and the competition stops only when this profit is annihilated.[7]

An intensive margin, indefinitely elastic, is supposed to be furnished by the changes in the forms of capital to suit the number of laborers. There could, therefore, be no surplus of labor vainly seeking employment, for the beneficent changes in the forms of capital accommodate all who may come. As the number of laborers increases, the fund of capital remaining the same, tools are multiplied, but they are "all less costly and less efficient." [8]

This certainly looks like a strange law, and somewhat out of harmony with the facts of industrial life; for those who have investigated the subject tell us that an over-supply of common,

[6] Clark, *op. cit.*, p. 198. [7] *Ibid.*, p. 110. [8] *Ibid.*, p. 176.

unskilled labor has been the chronic condition for a hundred years; and we have as yet seen no indication that modern employers intend to return to less efficient forms of capital.

Moreover, the theory is not logical. In the first place, employers would have no economic motive in using less efficient tools on account of cheaper and a more abundant supply of labor; because the efficiency of a tool depends upon the mechanical principals upon which it is constructed and not upon the rate of wages. In the second place, lower wages would mean lower cost of making machines; hence, employers would have no reason for wanting less efficient machines, because they would be cheaper. In case some special machine is held at a very high price owing to some patent right, there may be some tendency to use cheaper machines in case wages fall; but there could be no *general* tendency in that direction.

Another version of the productivity theory bases its argument upon the marginal-utility theory of value—a theory that has by no means been fully established. The argument runs thus: The value of all production goods depends upon the value of the consumption goods. Labor is a production good. Therefore, the value of labor depends upon the value of its product.[9] It is doubtless true that "if the price of iron products falls, the price of iron ore will fall;" but it is also true that, if the price of iron ore falls, the price of iron products falls. It is true that, if the price of the products of labor falls, the price of labor falls; it is also true that, if the price of labor falls, the price of the product of labor falls. And it is in order to ask at this point how "we know that the ultimate explanation of value is found on the side of utility and that marginal cost adjusts itself to marginal utility." [10]

If laborers have it in their power to raise their standard of life by limiting the supply of labor, and by decreasing the supply of labor to raise the marginal product, how can it be maintained that the marginal product is the ultimate force? And that laborers have the power to limit their number does not seem to be denied by the advocates of the marginal-productivity theory. Nor could it well be maintained that men have no control over the increase of population, for we have abundant evidence that such control is exercised at the present time by the more prosperous classes, and sometimes by the less prosperous who live close to the land.

[9] Seligman, *Principles of Economics*, pp. 418, 417. [10] *Ibid.*, p. 712.

The final objection to the marginal-productivity theory is its failure to prove that there is an indefinitely elastic marginal field where all labor can find employment; and we therefore have no assurance that wages may not fall below the marginal product by the competition among laborers. In such a case the value of the marginal product may tend to equal the wages; but it is the fall in wages that causes the fall in the value of the marginal product. Under such circumstances there is no definite formula by which we can express the rate of wages; for the fierceness of the competition may possibly send wages below the minimum of subsistence for a certain length of time.

The third general question with which we have to deal is whether or not the marginal-productivity theory implies the exploitation of all the earlier units. If only the marginal men get what they produce and all the others are robbed, society stands condemned, according to the advocates of the theory. But it would seem that the idea of diminishing productivity should lead to inequality of wages and not equality. Moreover, it would seem that the idea of diminishing productivity contradicts the idea of equal productivity. The explanation offered to clear away this contradiction is that

> the new working force and the old one share alike in the use of the whole capital, and with its aid they *now* create equal amounts of product. The earlier men have relinquished a half of the capital that they formerly had; and in making this surrender the men of the earlier division have reduced the productive power of their industry, by the amount that the extra share of capital imparted to it.[11]

But if the extra share of capital possessed by the earlier men aided them in producing the extra product, the earlier men did not produce all that was formerly paid them, and capital was robbed. This theory of "imputation" is concisely stated thus:

> A correct conception of the nature of any rent makes it a concrete addition which one producing agent is able to make to the product that is attributable to another producing agent.[12]

That is, labor makes an addition, x, in the product, $x+y$, and the whole product, $x+y$, is "imputed" to capital. But if labor produced x, capital did not produce it. Moreover, this explanation contradicts

[11] Clark, *Distribution of Wealth,* pp. 323–25.

[12] *Ibid.,* p. 195.

another part of the theory. Here it is claimed that the new men, the marginal men work with capital; elsewhere we are told that the marginal men are unaided. Now, the marginal men are either aided or unaided. If they are unaided, they are robbed when their pay is reduced on taking on additional men; because, if unaided by capital before the new men are added, they cannot under any circumstances be any less unaided. If the marginal men are aided by capital and yet receive the whole marginal product, capital is robbed. Hence, whichever of these contradictory views we adopt, we have an exploitation theory of distribution.

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